DOCUMENT RESUME

ED 146 901 IR 005 285

AUTHOR Ely, Donald P.
TITLE Reflections From a Crystal Ball: The Future of the Library.
PUB DATE 7 Oct 77
NOTE 20p.; Paper presented at the Biennial Conference of the North Carolina Library Association (Winston-Salem, North Carolina, October 7, 1977)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Community Change; *Futures (of Society); *Information Services; *Libraries; *Library Planning; Social Change; *Trend Analysis

ABSTRACT

This paper is concerned with helping proactive people prepare for the future. The future society is considered, then the process of change, and finally, what all of this means to libraries. Several approaches to the future are reviewed, but the proactive approach, in which people help to shape the situation in which they find themselves by setting goals and moving toward them, is considered best able to deal with future change. Some assumptions about the future or alternative futures are made, and consequences of these assumptions are discussed. Changes in speed, growth of knowledge, urban living, and other societal factors are traced. Developments which impinge on future society such as lasers, machines, chemicals and nuclear power will also affect changes in libraries. Trends in library development are described, including increased access to information for all people, greater diversity of information sources, increased cooperation among agencies, greater participation in planning and operating information services, and greater willingness to employ technology. (Author/KP)

**********
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
**********

Dr. Donald P. Ely
Professor of Education
Syracuse University

ED146901

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Donald P. Ely

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

# Reflections From a Crystal Ball:
# The Future of the Library

## The Philip S. Ogilvie Lecture 1977

IR005285

We seem to be preoccupied today with a concern for the future. There has been a proliferation of publications dealing with the future over the past few years. There are many films dealing with the future. Centers for the study of the future have been established. More and more professional meetings follow the theme of the future. Books have been written. Study commissions have been formed. Concern for the future is pervasive.

It's not so much that we haven't been concerned about the future in the past. We have always looked ahead and tried to estimate what is around the next corner. Future orientation has usually been based on the next two to five years. (How many 5-year plans have been created for developing nations?) The new emphasis, however, looks at the future as ten or more years away. The year 2000 is mentioned with some frequency.

To consider the future of one discrete field, such as library and information science, is becoming increasingly difficult. There are too many societal variables which impinge upon the field to look at it in isolation. On the surface it might seem simple to estimate what new inventions appear to be on the horizon, e.g., drugs to enhance learning, improved computer access, and lasers. The simplistic application is to ask what implications each new development might have for libraries.

This approach would be a serious error in my opinion. Someone once said the road to hell is paved with good inventions. Perhaps

---

Paper presented at the North Carolina Library Association Biennial Conference, Winston-Salem, North Carolina, October 7, 1977.

we have emphasized things first and diminshed the importance of people and processes. Perhaps we have been reactive rather than proactive. A reactive person is one to whom something has happened and does something about it but a proactive person is one who feels that something is about to happen and does something before it appears. The reactive person adjusts to the situation in which he or she finds himself while the proactive person helps to shape the situation in which he or she wants to find himself.

This paper is concerned with helping proactive people prepare for the future. We first consider the future society; then the process of change; and finally what all of this means for libraries.

The Context

Before we consider libraries as a specific institution we must consider the society in which we might find ourselves. To predict the future of libraries without the perspective of the societal context is like wearing blinders. Therefore, we will review several broad future projections.

My purpose is not to predict the future. No person or group can do that. My purpose is simply to help us all to recognize the changes that are occurring to help bring about the kind of understanding that may render the changes less painful; to warn of hazards along the way; and to attempt a few glimpses of what the future could be if we would but help to create it.

Prophecies have a tendency to be self-fulfilling. Predict good things and they may come true. After all, soothsayers are literally

truth-sayers. Some people may ask, "Why try to predict the unpredictable?" Unless we make predictions about the future, our own and others, we have no way to turn, no route to travel, no map to follow.

First of all, we should realize that there is no single future, but alternative futures. "The future" is a collective term, the combined futures of all individuals. If you change one individual, you change the future. The future is what you make it. If you wait for the future to happen to you, you deserve the fate which you receive.

Looking at the Future

What stance should we take as we confront the future? There are a variety of approaches which may be used.

1. The Passive Observer - this individual sits back and lets the future happen to him. The passive observer feels adaptable to any situation in which he finds himself. His motto: "Que sera, sera."
2. The Extrapolator - this individual puts her finger to the wind two or three times and on that basis draws the curve. Even though the data are based on discrete events she feels safe in making the projections. The most frequent result is more of the same. Her motto: "Bigger is better."
3. The Crystal Ball Gazer - this individual is usually creative and comes up with fantasies of the future. Science fiction writers fit this category. The crystal ball gazer is a future historian who prepares scenarios for 1985 and 2001.

There is just enough truth to make his projections seem very plausible. His theme song is "Fly Me to the Moon."

4. The Synthesizer of Indicators - this person carefully studies related developments in science, technology and society and makes estimates of future cultures. The fields of social psychology and anthropology contribute to this category. Motto: "The future isn't what it used to be."
5. The Scientific (or Pseudo-Scientific) Investigator - this person uses accepted research methodologies to come up with her forecasts. The Delphi technique is the sina quo non for gathering data but other "accepted" approaches are used. Her motto: "When you don't know what to do, gather data."
6. The Proactive Participant - is really quite different from the previous types. The proactive participant is one who would help to make the future happen. This person is able to set goals and deliberately move toward them. The proactive participant is the exact opposite of the passive observer. Motto: "If you can't find a way, I'll make one."

My hope is that each of you will embrace the approach of the proactive participant. It is imperative that each of us remembers that the individual is responsible for what happens in the future, no matter what has happened in the past.

1939 is as far in the past as 2015 is in the future. But the simple review of 38 years in the past and prediction of 38 years in the future is an erroneous approach to predicting future changes. It is the accelera-

tion of change which will pack so much more into the next 38 years than in the past 38. Futurists do not look at potential new inventions but rather the rate of invention. Things are moving faster. The rate of change is so rapid that we do not possess the ability to relate the new to our past experiences. Unless we are prepared to cope with these changes, we will retreat into the status quo shell and wither. Carl Rogers says that man's greatest problem in the future is "how much change the human being can accept, absorb and assimilate, and the rate at which he can take it."

What does all of this have to do with libraries and society? It has a lot to do with our concerns. Unless we can rise above our mundane, day-to-day problems and look ahead toward where we are going and how we're going to get there, we will be condemned to ride the eternal exercycle - peddling fast and furiously, but not getting anywhere. We need to look not only at the future but at alternative futures. If we can define the future as we would like it to be, and keep the options open for new developments, we can become masters over our own destiny rather than accepting whatever happens and trying to cope with it.

Where do we begin?

Thinking About the Future

The very thought of the future is a mind blower if you listen to those whose feet already seem to be in the 21st century.

Begin with future thinking. How do we get hold of the ability to think forward. Anyone who attempts to predict the future is at once an

expert and a fool. Who is right? We are not privileged to know until the future becomes the present. But if we could orient ourselves to a future stance, we would be "in tune" to pick up those indicators which point to possible futures. Charles Kettering once said, "My interest is in the future because I'm going to spend the rest of my life there."

Toffler and others have presented the concept of 800 lifetimes.

> ... if the last 50,000 years of man's existence were divided into lifetimes of approximately 62 years each, there have been 800 such lifetimes. Of these 800, fully 650 were spent in caves. Only during the last 70 lifetimes has it been possible to communicate effectively from one lifetime to another - as writing made it possible to do. Only during the last 6 lifetimes did masses of men ever see a printed word. Only during the last 4 has it been possible to measure time with any precision. Only in the last 2 has anyone used an electric motor. And the overwhelming majority of all the material goods we use in daily life today have been developed within the present, the 800th, lifetime.

Assumptions About the Future

In thinking about the future there are several assumptions which will serve as points of departure.

1. We have never experienced change in the history of mankind at the rate or the intensity or with the consequences which we now confront. We must be interested in the future because there is relatively little in the past that is useful in coping with change. The static ways and static guidelines which have dominated history are not sufficient for the future.
2. We are rapidly running out of lead time in relation to the changes about us. We have run out of lead time in matters of pollution, population control, energy and other matters. The

potential failure is one of will, not of knowledge and skills.

3. There are few viable, useful, institutional, social or value systems from the past which should be perpetuated. We are face-to-face with innovating or perishing. That is the most uncomfortable assumption. Whatever there is from the past may be useful as a resource, but not as a guideline. We are forced to be innovative if we are to have a present, let alone a future.
4. The children of today are better prepared to live in our present and future society than are their elders. This means that they know more, not necessarily that they have experienced more.

Consequences of the Assumptions

If we can suspend judgment for a few moments we can consider the consequences of these assumptions.

1. Many of the assumptions with which we operate on a day-to-day basis are inaccurate. This means the things we believe to be true about society, about people and about the world need to be altered.
2. We carry within us potentially irrelevant value systems. Some of our values no longer apply in relation to the neighborhood in which we live, the family of which we are a part and the institutions of which we are a part - like the colleges and schools which base their curricula and calendar on the society of 75 years ago.
3. These assumptions also skirt some of the fundamental questions

relating to the purpose of man. For example, what conditions must be established to help individuals develop their fullest potential in a world that has not yet learned how to feed, clothe, shelter and educate two-thirds of its people? Arnold Toynbee helps to highlight the concern which these assumptions don't seem to touch: "What is the true end of Man? Is it to populate the Earth with the maximum number of human beings ... or is it to enable human beings to lead the best kind of life that the spiritual limitations of human nature allow?"

Contemporary Firsts

The ambiguity of the crystal ball is always unsettling so a look at some contemporary "firsts" - things that have happened within one lifetime - might help us to gain some perspective. Within that period we have brought about such momentous changes that no other generation has ever had to deal with these factors:

1. The speed of change ... 6000 years ago the camel travelled at 8 mph; 3000 years later - the horse drawn chariot moved at 20 mph; 5000 years later (1784) the Royal English Mail Coach reached the magnificent speed of 10 mph; in 1825 the steam locomative went 12 mph but it was not until 1880 that the steam locomotive reached a speed of 100 mph. In 1931 the airplane flew at 400 mph; 30 years later it exceeded 800 mph; and 10 years later - 18,000 mph.
2. The growth of knowledge ... in 1500 AD Europe was producing 1000 titles of books per year. That means that it would take

a full century to produce a typical small town library with 100,000 books. By 1950, we were producing 120,000 titles per year. (10,000 a month) We could produce, therefore, about 100 such libraries in a century. What used to take a century now took 10 months. By 1960 we could produce that many titles in 7 1/2 months and by 1965 we were producing 1000 titles per day.

3. Change of urban living ... In 1850 there were four cities in the world with a population of one million or more; by 1900, there were 19; by 1960 there were 141. Imagine all the big cities of the world, New York, Los Angeles, London, Madrid, New Delhi, Manila - if we could hold the population of those cities where they are today, we would need to build a new city for each one of them in 11 years just to keep up with the population growth. (The 1970 census showed that Los Angeles grew at the rate of 100,000 per year). In 1940, 60% of the population was living in small towns (under 40,000 population) today 20% live there. In 1940, 20% lived on the land; today it is less than 5%. Cities have been with us for 5,000 years, urban centers for 30 years.

4. There has been a change in decision-making processes from local to national locales. We have become a national society. A national network of radio and TV exists. Several newspapers are national in scope and periodicals further enhance the national communication picture. A local event becomes a national spectacular.

5. Movement into a post-industrial world. We are a service oriented economy. The manufacture of steel, automobiles and hard goods is no longer dominant. In the 1970's more people are employed in the education enterprise than in the auto and steel industries combined. That is a reversal over 30 years ago.

6. We are a transient society. 30% of the American population moves each year. The person who was born, raised, lived and died in the same community is a rarity. The children of today do not expect permanence nor stability, they expect mobility.

7. This is the first time in our society that the young are in a majority. There are 54% of "them;" 46% of "us." Part of the source of control is in the hands of the elders but the source of the current crisis is that the source of control is in the hands of the elders but the source of power is in the hands of the young. These are launching pads to the world that is to come.

Libraries in the 21st Century

If libraries are going to be a reflection of the society in which they exist, then greater diversity marks the future of information. The interlocking, interdependent complexity of our present society cancels any attempt to claim the independence of science, or business of libraries. To consider the future of libraries apart from the social context of which they will be a part is of little value. And so libraries must be considered in light of all of those developments

which impinge upon future society. What are some of these factors?

Lasers may one day see uses we cannot imagine. Laser technology is still in its infancy, yet vast research efforts are underway. Lasers are creating an exciting new field called holography, in which light waves from an object can be recorded on film and later reproduced in mid-air as a three-dimensional "photograph." Most laser research, however, is going into the eventual development of a long-range communications system, using light waves. Many obstacles need to be overcome first, but the laser's unique properties, including highly directional, coherent, monochromatic light and its extremely wide frequency range, make this use particularly promising. Lasers may one day provide us with instant inter-planetary television as it did from the moon.

Humanizing machines and mechanizing humans are cross trends that are sure to occur in the future, but the extent to which man and machine will be united is uncertain. Computers exist which can learn, remember, see, seek goals, reason, walk, sing on key, talk, be irritable, play games, grasp, adapt to an environment and even design improvements in themselves. While artificial organs made possible by miniature electronic components are being used in the human body, man-like computers may one day contain plasma circulating through a viscera-like envelope, allowing them to be self-healing. Direct mind-machine communication is also being explored for the transfer of thought instead of words.

Experiments indicate that certain chemicals in the brain will, when implanted in another brain, transfer knowledge. Untrained rats have suddenly performed as if taught when injected with chemicals from the brains of trained rats, and scientists believe that memory storage, in-

volving the DNA and RNA molecules, is the same in animals and humans. These chemicals, perhaps in pill form may eventually have highly beneficial uses. Electrical and chemical stimulation of brain cells has also shown remarkable results in calming nervous monkeys, changing basic needs of rats and even stopping a bull in mid-charge. These early efforts may lead to a totally new understanding of the human brain, and new means of correcting mental disorders.

Practical nuclear power sources for every nation on earth are well within our technical capability in this century, provided the "unforeseeable" element of political and financial support is exerted. To answer the staggering future energy needs of the world, nuclear power is the most efficient source known for electric power, and could be developed in either of two systems: small, self-contained reactors could serve individual buildings and complexes, or vast distribution systems could be set up to draw from huge multi-megawatt nuclear plants. Nuclear fusion, still a relatively undeveloped field, could provide vast energy sources without the side effect of radiation, but a great deal of research is necessary to make this practical.

The brain's capacity for sending and receiving signals through means other than the known senses has been indicated in a number of experiments. A doctor successfully transmitted Morse cody by controlled brain waves alone. The phenomenon, capable of activating a computer, demonstrated the "sending" ability of the brain. ESP, the subject of extensive research, is unlikely to become a controlled science in this century, but its potential is remarkable.

Many scientists now believe that resistance to disease, which declines in advancing years, allowing the onset of fatal infection and illness is partially a function of heredity and therefore probably amenable to control by man. Hereditary material in the cells may, through damage or simple degeneration of effectiveness, gradually stop directing these cells to repair or rebuild themselves. Recent understanding about the nucleotides that govern life itself may eventually lead to our ability to intervene generically and augment or introduce any protective function in the body, perhaps adding 50 years or more to expected lifespans.

Recent studies at Port Elizabeth Aquarium in South Africa indicate that communication in modified English can be established with dolphins. A vocabulary of several hundred sounds has been set up by recording dolphin language electronically. English words have also been converted into electronic sounds that dolphins can hear and "understand." The process used is an electronic translation of tone into intensity variation, the medium used by dolphins. It is said that dolphins' brains react 15 times faster than humans but that their memory level is lower. Similar studies on other higher primates indicate that man may one day be able for the first time to communicate in an abstract way with the other species of life on this planet. Chimpanzies have been taught to communicate with signs used for communication with the deaf.

The ability to control the formation of new beings may be one of the most basic developments of the future. Recent discoveries about the

nucleonic acids, the basic building blocks of life, have led to the belief that man may some day be able to treat genes in such a way that desired characteristics can be realized. With "human prescriptions" we could develop nearly any type of man desired - super-intelligent, highly talented, better able to survive in severe climates, in rarified atmospheres of other planets, or underwater, etc. Other research indicates that "tissue culture" reproduction may also become possible. This would allow a man to have cells from his own body placed in storage so that a complete replica of himself could be grown from these cells after his death.

These predictions make the future look overly technological with human beings serving as handmaidens to the machine. Where do people fit into the picture? Back to Carl Rogers. He points out that man's greatest problem is "... how much change the human being can accept, absorb, and assimilate, and the rate at which he can take it. Can he keep up with the ever-increasing rate of change, or is there some point at which the human organism goes to pieces?" That appears to be the basic question.

On Change

One of the most frequently used words in all the futures literature is change. Many futurists see the institutionalization of change. To me, understanding of the change process and the ability to cope with it and manage it is so basic to our personal and professional future, that it is a hollow exercise to go further without some consideration of this process.

When we pursue a new goal, the result is perceived as sufficient if we succeed. When a similar goal is pursued later, we tend to repeat our successful strategy. We develop habits on the basis of successful strategies. As habits form, the actions we take are less and less open to change. As we get older we carry our habits with us into our future and we are less open to alternative ways of behaving because we have an investment in our habits.

If we are to have a future qualitatively different from the past, we must concern ourselves with discarding our once-sufficient habits. There can be no alternative futures if the future is perceived as linked to the past. As new ideas, products, processes and concepts confront us, our habit barriers inhibit consideration of the innovations.

A central problem is - how much change the human can accept and assimilate and the rate at which he can take it. Can the future person keep pace with the ever-increasing rate of technological change alone, or is there some point at which the human organism goes to pieces? Can we leave the habits and static guidelines which have dominated our past and embrace new ways - which will be required for survival?

It always seems easy to identify those who are resisting change, but difficult for us to see the barriers in ourselves. My first boss often admonished me to calm down when I observed the laggards. He said: "Eventually they will die off and then change can begin". But if they don't die - and genetic research appears to be leading to this intriguing eventuality - how will old ideas and old habits disappear? Will we be able

to change if habits don't disappear with the demise of the people who hold them?

The Future of the Library

Perhaps we should acknowledge that there will be no single library in the future - but many libraries serving different people in different ways in different locations. Rather than to narrate the usual litany of new technological developments and how each new invention may alter the present procedures and processes of librarianship let us look at the trends which appear to be emerging.

1. There will be increasing access to information for all people, especially the information-poor in our society. The points of access will be closer to the individual - by telephone, by television, and through neighborhood information centers, for example.
2. There will be greater diversity of information sources. Individuals who seek information will not care if it is stored on paper, or magnetic tape or on film. It may come from resource people. It may come from non-library organizations which use library -like sources for basic information.
3. There will be increased cooperation among all agencies which offer education and information services to the people. Coalitions will emerge in community centers which combine work, school, government, health and information services in one central location. Libraries and schools will develop more consortia and regional service centers that one institution alone could

not offer.

4. There will be greater participation in the planning and operation of information services. Citizens will demand more direct influence over the type and availability of information offered to each community. The goals for information services will be jointly developed by professionals and community members and will consequently better reflect the information needs of the community.

5. There will be a greater willingness to employ technology as it becomes more and more integral to the various sectors of society. But this technology must meet the criterion of improved information services to clients. It will have to insure that the use of information is capable of fostering self-expression thus making its use more rewarding than it is today.

These are not the only trends but they seem to be the most salient for our review today. Other trends should be considered and added to this list.

The Challenge

H.G. Wells, who was deeply interested in the shape of things to come, once said: "The world is heavy with the promise of greater things." Little did he know how heavy that promise proved to be.

Like the potentials that have been predicted in the past - and have far exceeded the wildest imaginations - so will our future world be rich with the potential for a society where the quality of life enhances man's

dignity. There can be deeper human relationships and less lonliness.

There can be a world in which man lives with technology, not by technology.

Arthur C. Clarke provides the challenge:

> In the race between education and catastrophe of which H.G. Wells warned us, the last lap has already begun. If we loose it, the world of 2001 will be much like our present with its problems and evils and vices enlarged perhaps beyond endurance. But if we win, 2001 could mark the great divide between barbarism and civilization. It is inspiring to realize that, with some luck and much hard work, we have a chance of living to see the final end of the dark ages.